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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|---|---|---|---|
| 10/567,789 | 02/09/2006 | Toshio Wakayama | 0925-0227US1 | 2692 |

2292 7590 11/07/2008

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| EXAMINER | |
|---|---|
| BRAINARD, TIMOTHY A | |

| ART UNIT | PAPER NUMBER |
|---|---|
| 3662 | |

| NOTIFICATION DATE | DELIVERY MODE |
|---|---|
| 11/07/2008 | ELECTRONIC |

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/567,789 | WAKAYAMA ET AL. | |
| | Examiner | Art Unit | |
| | TIMOTHY A. BRAINARD | 3662 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *11 September 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-23* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-23* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *2/9/2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

1. Claims 1-3, 5-11, and 13 are rejected under 35 U.S.C. 102(a) as being unpatentable over **Saito** (US 6380884) in view of **Hammerquist** (US 5280294). Saito teaches (claims 1 and 2) a radar device including an antenna for radiating beams in a plurality of directions and for receiving as reception waves the beams having been reflected by targets (abs), a receiver for performing detection processing on the reception waves received by the antenna to output received signals (abs), a signal detector for extracting from the received signals outputted by the receiver quantities characterizing the reception waves (abs), the radar device characterized by a direction integrating unit for, when a plurality of primary directions calculated by the direction calculating unit is present, calculating an integrated direction, being the true target direction, from an area in which the density in a distribution of the plurality of primary directions is a predetermined value or greater, the integrated direction calculation being based on the primary directions belonging to the area (abs and col 1, lines 54-67), (claim 2) a direction integrating unit for, when a plurality of primary directions calculated by the direction calculating unit is present, calculating an integrated direction, which is the true target direction, from an area in which the density in a distribution of the

reception-wave characterizing quantifies used in calculating the plurality of primary directions is a predetermined value or greater, the integrated direction calculation being based on the target directions belonging to the area (abs and col 1, lines 54-67), (claim 3) the direction integrating unit forms a cluster from the primary directions belonging to the area in which the density is a predetermined value or greater, and calculates the integrated direction in units of that cluster (col 1, lines 54-67), (claim 5) the direction integrating unit obtains a distribution center of a plurality of primary directions belonging to the cluster, and outputs the distribution center as the integrated direction of the cluster (col 1, lines 54-67), (claim 6) the direction integrating unit obtains the distribution center based on angles of the primary directions belonging to the cluster, each weighted by the reception-wave characterizing quantity used in calculating the primary direction (col 1, lines 54-67), (claim 7) the direction integrating unit performs weighting by using the reception amplitude of the reception wave as the reception- wave characterizing quantity (col 1, lines 54-67), (claim 8) the direction integrating unit performs weighting by using the reception power of the reception wave as the reception-wave characterizing quantity (col 1, lines 54-67), (claim 9) the direction integrating unit designates as the integrated direction of the cluster the target direction where the reception-wave reception amplitude used in calculating the primary direction belonging to the cluster is maximum (claim 10), direction integrating unit designates as the integrated direction of the cluster the primary direction where the reception- wave reception power used in calculating the primary direction belonging to the cluster is maximum (col 1, line 54 to col 2 line 14), (claim 11) the direction integrating unit obtains

the density in a distribution of the reception-wave reception amplitude used in calculating the primary direction, and outputs as the integrated direction the angle where the distribution density is locally maximum (col 1, lines 52-63), (claim 13) the direction integrating unit obtains strength of the integrated direction, and outputs the integrated direction if the strength satisfies a predetermined condition (col 1, line 54 to col 2, line 14).

2. **Saito** Does not teach a direction calculating unit for calculating a primary direction, being the direction of a target, from a combination of the characterizing quantifies calculated by the signal detector based on the reception waves from at least two beams that partially overlap, among the beams radiated in the plurality of directions.

3. **Hammerquis**t teaches a direction calculating unit for calculating a primary direction, being the direction of a target, from a combination of the characterizing quantifies calculated by the signal detector based on the reception waves from at least two beams that partially overlap, among the beams radiated in the plurality of directions (col 5, lines 20-41 and fig 3).

4. It would have been obvious to modify **Saito** to include a direction calculating unit for calculating a primary direction, being the direction of a target, from a combination of the characterizing quantifies calculated by the signal detector based on the reception waves from at least two beams that partially overlap, among the beams radiated in the plurality of directions because it is one of multiple design choices with no new or unexpected results.

5. Claims 4, 12, 14-18 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Saito** in view of **Hammerquist** as applied to claims 3, 11, and 13 above, and further in view of **Yamada** (US RE37725). **Yamada** teaches (claim 4) the angular difference between two of the primary directions is a predetermined value or greater, the direction integrating unit assigns the two target directions to different clusters (col 2, lines 7-14), (claim 12) the direction integrating unit obtains the distribution density by setting a window function for smoothing the reception-wave reception amplitude (figure 10 and col 7 line 32 to col 8, line 3), (claim 14) the direction integrating unit obtains as the strength of the integrated direction the total sum of the reception-wave reception amplitudes used in calculating the integrated direction (fig 10c and col 7, lines 61-67), (claim 15) the direction integrating unit obtains as the strength of the integrated direction the mean value of the reception-wave reception amplitudes used in calculating the integrated direction (col 8, lines 1-11), (claim 16) the direction integrating unit obtains as the strength of the integrated direction the mean value of the reception-wave reception powers used in calculating the integrated direction (col 7, lines 32-40), (claim 17) if the strength of the integrated direction is a predetermined value or greater, the direction integrating unit outputs the integrated direction (col 7, lines 32-40), (claim 18) the direction integrating unit obtains, based on the number of the primary directions belonging to the cluster, strength of the integrated direction of the cluster, and outputs the integrated direction if the strength satisfies a predetermined condition (col 2, lines 1-22), and (claim 20) the direction integrating unit estimates, assigning the calculated integrated direction to an initial value of an angle component, the target

directions by performing model fitting on model reception signals that are preset assuming the angle and reflectance ratio of the target, and the received signals used in calculating the primary direction by the direction calculating unit (col 7, lines 32-60). It would have been obvious to modify **Saito** in view of **Hammerquist** to include the angular difference between two of the primary directions is a predetermined value or greater, the direction integrating unit assigns the two target directions to different clusters, the direction integrating unit obtains the distribution density by setting a window function for smoothing the reception-wave reception amplitude, the direction integrating unit obtains as the strength of the integrated direction the total sum of the reception-wave reception amplitudes used in calculating the integrated direction, the direction integrating unit obtains as the strength of the integrated direction the mean value of the reception-wave reception amplitudes used in calculating the integrated direction, the direction integrating unit obtains as the strength of the integrated direction the mean value of the reception-wave reception powers used in calculating the integrated direction, if the strength of the integrated direction is a predetermined value or greater, the direction integrating unit outputs the integrated direction, the direction integrating unit obtains, based on the number of the primary directions belonging to the cluster, strength of the integrated direction of the cluster, and outputs the integrated direction if the strength satisfies a predetermined condition, and the direction integrating unit estimates, assigning the calculated integrated direction to an initial value of an angle component, the target directions by performing model fitting on model reception signals that are preset assuming the angle and reflectance ratio of the target, and the

received signals used in calculating the primary direction by the direction calculating unit because each is one of multiple design choices with no new or unexpected results.

6. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Saito** in view of **Hammerquist** as applied to claim 3 above, and further in view of **Aker** et al (US 6646591). Aker teaches the direction integrating unit selects a predetermined number of the integrated directions in descending order of the strength, and outputs the selected integrated directions (col 13, lines 13-22). It would have been obvious to modify **Saito** in view of **Hammerquist** to include the direction integrating unit selects a predetermined number of the integrated directions in descending order of the strength, and outputs the selected integrated directions because it is one multiple design choices with no new or unexpected result.

7. Claim 21-22 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Saito** in view of **Hammerquist** in view of **Yamada** as applied to claim 20 above, and further in view of **Barbaresco** (US 5729465). **Barbaresco** teaches the direction integrating unit selects from the primary directions belonging to the cluster a predetermined number of primary directions, and performs the model fitting for estimating the reflectance ratio using a least-square method assuming one of the selected primary directions as the angle component and the reflectance ratio estimated by the model fitting is a predetermined value or greater, the direction integrating unit estimates the target direction with respect to the cluster (col 5, lines 30-60). It would have been obvious to modify **Saito** in view of **Hammerquist** in view of **Yamada** to include the direction integrating unit selects from the primary directions belonging to the cluster a

predetermined number of primary directions, and performs the model fitting for estimating the reflectance ratio using a least-square method assuming one of the selected primary directions as the angle component and the reflectance ratio estimated by the model fitting is a predetermined value or greater, the direction integrating unit estimates the target direction with respect to the cluster because it is one multiple design choices with no new or unexpected result.

8. Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Saito** in view of **Hammerquist** in view of **Yamada** in view of **Barbaresco** as applied to claim 21 above, and further in view of **Rao** (US 6278798). Rao teaches the direction integrating unit rejects an integrated direction calculated from the cluster where the minimum value of a residual sum of squares in the model fitting is a predetermined value or greater (col 8, lines 16-28). It would have been obvious to modify **Saito** in view of **Hammerquist** in view of **Yamada** in view of **Barbaresco** to include the direction integrating unit rejects an integrated direction calculated from the cluster where the minimum value of a residual sum of squares in the model fitting is a predetermined value or greater because it is one multiple design choices with no new or unexpected result.

***Response to Arguments***

1. Applicant's arguments with respect to claims 1-23 have been considered but are moot in view of the new ground(s) of rejection.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to TIMOTHY A. BRAINARD whose telephone number is

(571) 272-2132. The examiner can normally be reached on Monday - Friday 8:00 - 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas Tarcza can be reached on (571) 272-6979. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/T. A. B./
Examiner, Art Unit 3662

/Thomas H. Tarcza/
Supervisory Patent Examiner, Art Unit 3662